

perform the calibration processing of the recording power of the recording optical beam B.

Further, it is standardized that the respective sectors 20 are used sequentially from the sector 20-1 on the outer periphery of the 5 DVD-R1.

For example, in the case of performing one calibration processing by use of only one sector 20, one calibration processing is performed on the sector 20-1 by recording a setting signal with the recording power increasing sequentially from the inner periphery to the outer 10 periphery (refer to a dotted line of FIG. 2), and the next calibration is performed on the sector 20-2 by recording a setting signal with the recording power increasing sequentially from the inner periphery to the outer periphery (refer to a dotted line of FIG. 2).

While, the RMA 12 is provided with 400 setting recording areas 15 for sequentially writing the values of the optimum recording powers having been set in the above calibration processing at a predetermined timing and the numbers of the sectors 20 within the PCA18 having been used so far for the calibration processing.

Returning to FIG. 1, in the above calibration processing by use of 20 the PCA 18 and the RMA 12, for example, in the case of performing one calibration processing by use of only one sector 20 as mentioned above, at first, the control section 4 supplies the control signal Sct to the recording pattern generating section 7 so as to generate the recording pattern signal Spt having the above-mentioned random pulse width 25 from 3T to 11T.

The control section 4 supplies the control signal Scp to the recording power setting section 6 so as to control it to record the

setting signal on the sector 20.1 while increasing the recording power step-by-step from the inner periphery to the outer periphery (refer to the dotted line of FIG. 2).

Thus, the recording power setting section 6 supplies the power signal Spc in a manner of increasing the recording power step-by-step.

The driving section 9 and the driver 10 record the setting signal sequentially within the sector 20.1 while increasing the recording power step-by-step based on the power signal Spc. This processing enables the setting signal step-by-step varying in a staircase pattern in the playback intensity to be recorded in the sector 20.1.

The peak level and the bottom level of the detected signal Srf obtained by reproducing the setting signal recorded in the above way, using the pickup 2, are detected by the level detecting section 24.

The level detecting section 24 eliminates the direct current component of the detected signal Srf through the condenser 21, obtains the peak level and the bottom level of the condenser signal Scd that is the resultant output, respectively through the peak detecting section 22 and the bottom detecting section 23, and supplies a peak level signal Spl and a bottom level signal Sbl to the control section 4.

Thus, the control section 4 sets the recording power in recording the setting signal in which the peak level is equal to the bottom level for every detected signal Srf corresponding to the pulse width from 3T to 11T, based on the peak level signal Spl and the bottom level signal Sbl, as the optimum recording power at that time, in the memory, not illustrated, hence to use it for the recording processing of the actual recording information Sr thereafter.

The calibration processing concerned with the embodiment executed chiefly by the control section 4 will be described more concretely by using FIG. 3 to FIG. 5.

FIG. 3 and FIG. 4 are flow charts showing the calibration processing, and FIG. 5 is a view showing various waveforms corresponding to the calibration processing.

In the calibration processing described later, one calibration processing is executed by using 64 pieces of sectors 20, and further in one sector 20, the setting signal is recorded with the same recording power and a mark signal described later is recorded in every 32 sectors. Further, in FIG. 5, the level of the detected signal Srf becomes higher in a downward direction.

As illustrated in FIG. 3, in the calibration processing of the embodiment (recording power setting processing), at first, each initial setting is executed (Step S1).

Now, the initial setting processing in Step S1 will be more specifically described. In the initial setting processing, a parameter X that is the counter value (incremented by one every time the recording power is increased by one step) indicating the space between the mark signals when a plurality of mark signals described later are recorded, is initialized (namely, parameter  $X \leftarrow 0$ ), the number M of changed steps of the recording power (in the case of embodiment is  $M=64$ ) is set in a parameter Y indicating the changing frequency of the recording power when the setting signal is recorded, and further, the initial value of the recording power (more specifically, the minimum value defined by the DVD-R format) is set in recording the setting signal other than the mark signal.